North Carolina Department of Environment and Natural Resources

Division of Air Quality

Perchloroethylene (tetrachloroethylene)

CAS 127-18-4

Current North Carolina AAL = 1.9×10^{-1} mg/m^3 (annual carcinogen)

AAL Documentation

Inhalation Unit Risk[1] (IUR) = 5.2×10^{-7} per µg/m^3

The Inhalation Unit Risk Factor was divided by 10 to compensate for animal to human extrapolation.

$$\text{Modified IUR} = \frac{5.2 \times 10^{-7}}{10} = 5.2 \times 10^{-8} \text{ per } \mu g/m^3$$

Perchloroethylene is classified as a probable human carcinogen by EPA, Group B2. In accordance with North Carolina guidelines, a 1 in 100,000 risk estimate was used to derive the AAL.

Linear Calculation

$$\frac{1}{5.2 \times 10^{-8} \text{ per } \mu g/m^3} = \frac{x}{1 \times 10^{-5}}$$

$$x = \frac{1 \times 10^{-5}}{5.2 \times 10^{-8}}$$

$$x = 1.9 \times 10^{2} \ \mu g/m^3$$

AAL for Perchloroethylene[2] = 1.9×10^{-1} mg/m^3

This information has been reconstructed using the decision matrix established by the North Carolina Academy of Sciences Air Toxics Panel, September, 1986.

Final version- June 2013 (NBJ)

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[1] EPA Addendum to the Health Assessment Document for Tetrachloroethylene (perchloroethylene), 1986. EPA/600/8-82/005FA. IUR based on a range of cancer slope factors for mouse and rat inhalation studies of 2.9 to 9.5 x 10^{-7} (mg/kg-day)$^{-1}$.

[2] 1 µg/m^3 = 10^{-3} mg/m^3